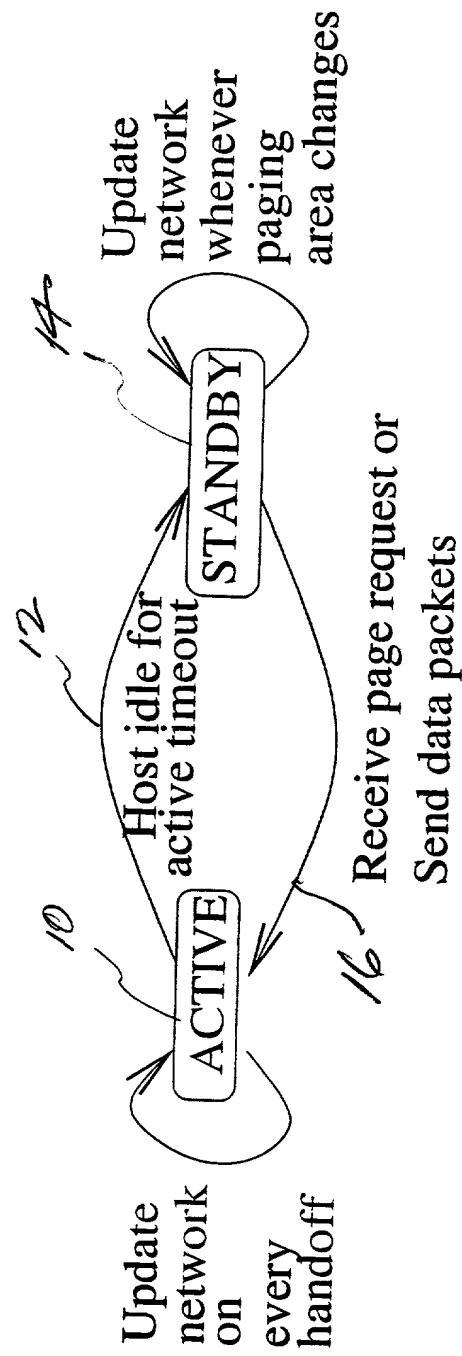
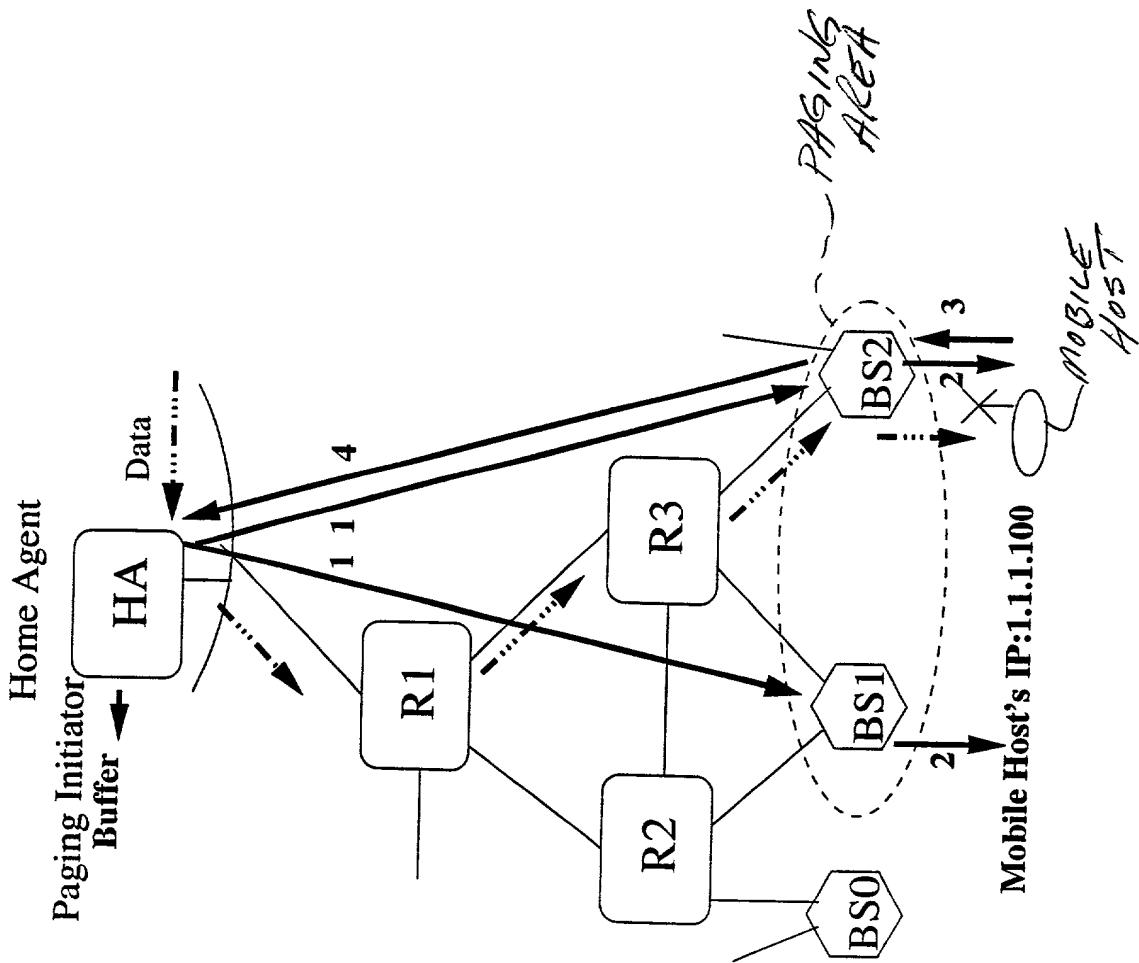


F/6. 1





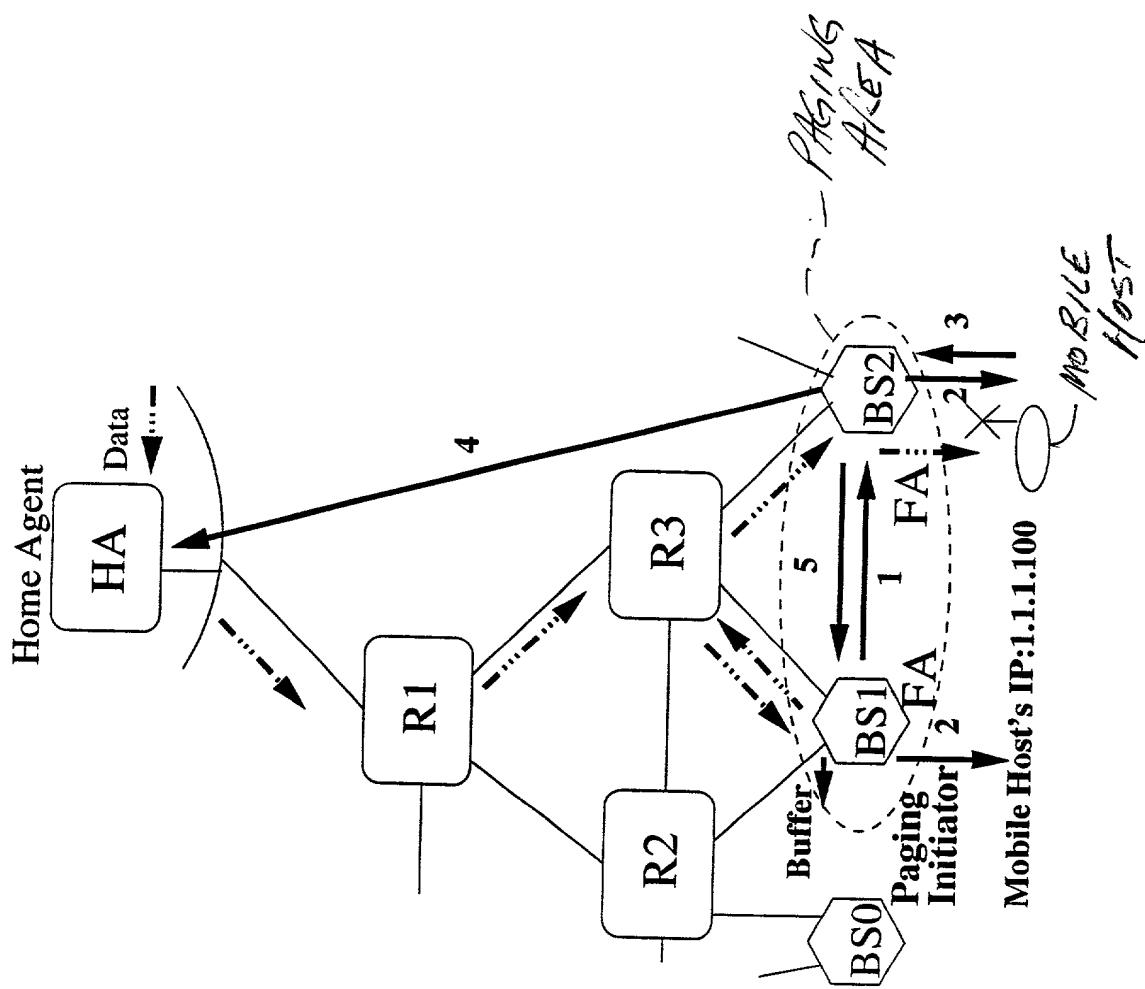


Fig. 3

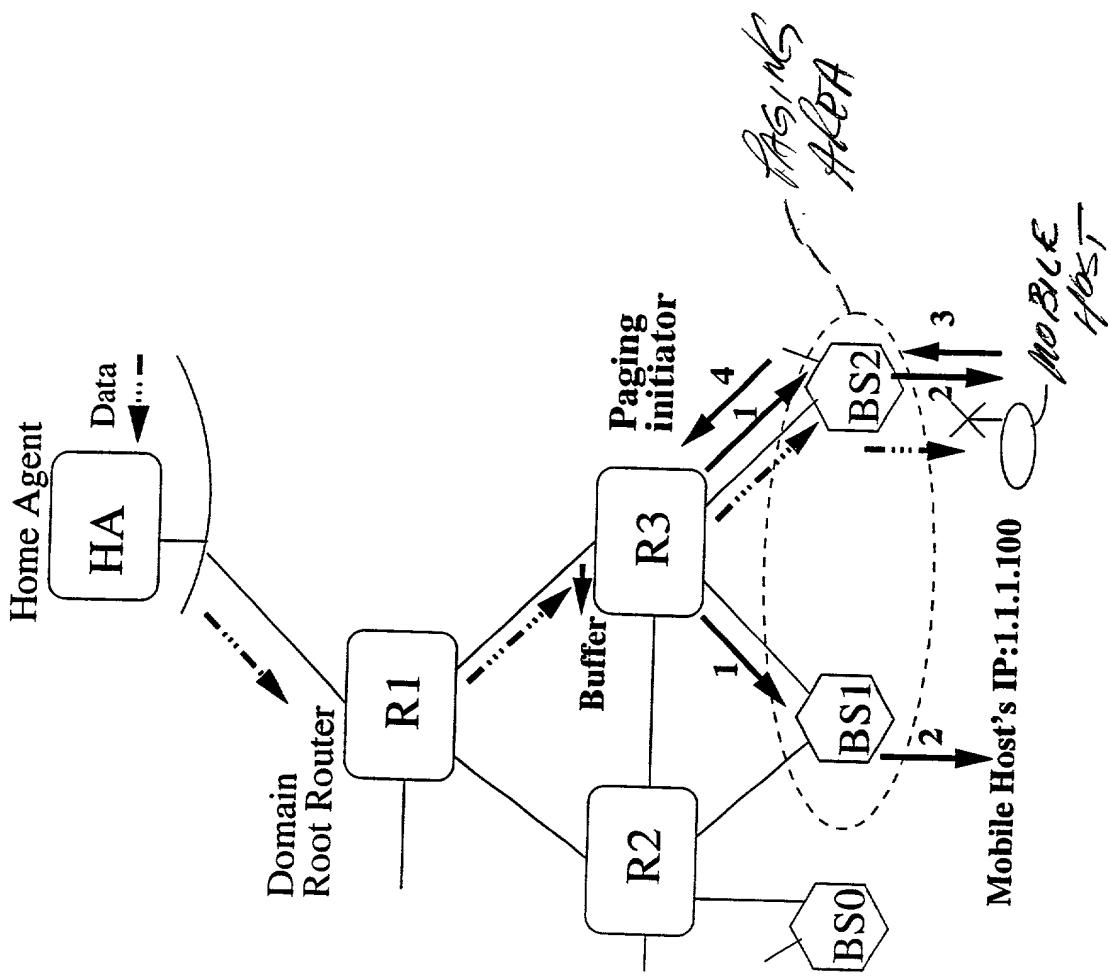
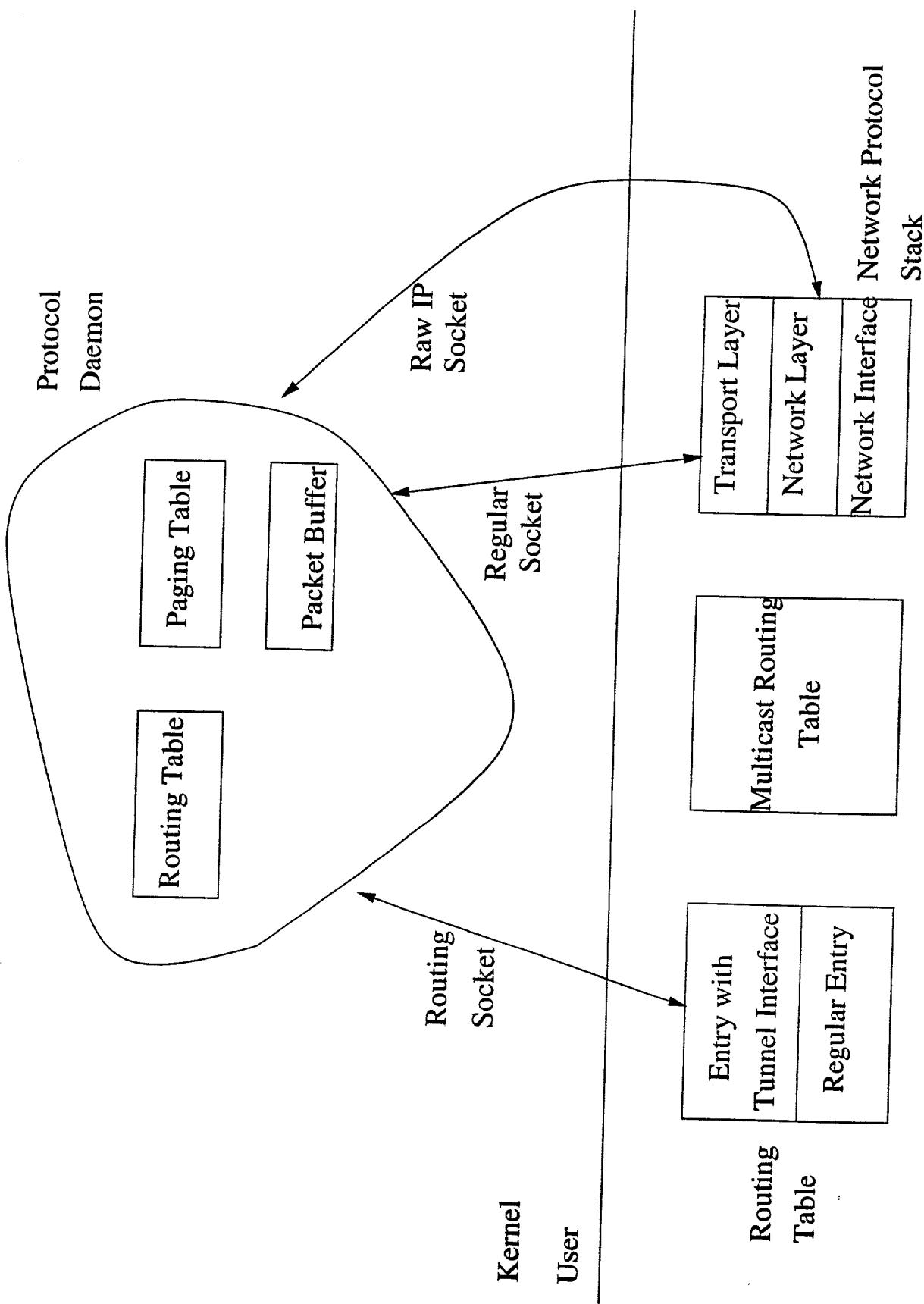


Fig. 7



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TABLE I
PAGING PROCESSING TIMES IN MILLISECONDS

| Router initiated (HA) | Fixed (found) | Fixed (not) | Last-loc. (found) | Last-loc. (not) | Hier. (found) | Hier. (not) |
|-----------------------------|---------------|-------------|-------------------|-----------------|---------------|-------------|
| init_page_request (router) | 0.173 | 0.173 | 0.323 | 0.316 | 0.196 | 0.203 |
| retry_page_request(router) | - | - | - | 0.157 | - | 0.155 |
| recv_init_page_request(bs) | 0.080 | 0.080 | 0.082 | 0.068 | 0.079 | 0.066 |
| recv_page_response(bs) | 0.378 | 0.378 | 0.331 | 0.317 | 0.334 | 0.316 |
| recv_page_response(router) | 0.279 | 0.279 | 0.190 | 0.193 | 0.204 | 0.215 |
| Base station initiated (FA) | | | | | | |
| init_page_request (bs) | 0.197 | 0.199 | 0.183 | 0.189 | 0.197 | 0.213 |
| retry_page_request(bs) | - | - | - | 0.117 | - | 0.118 |
| recv_init_page_request(bs) | 0.106 | 0.113 | - | 0.114 | 0.106 | 0.114 |
| recv_page_response(bs) | 0.237 | 0.233 | 0.251 | 0.234 | 0.249 | 0.232 |
| recv_page_response(router) | - | 0.429 | - | 0.413 | - | 0.428 |

Fig. 6

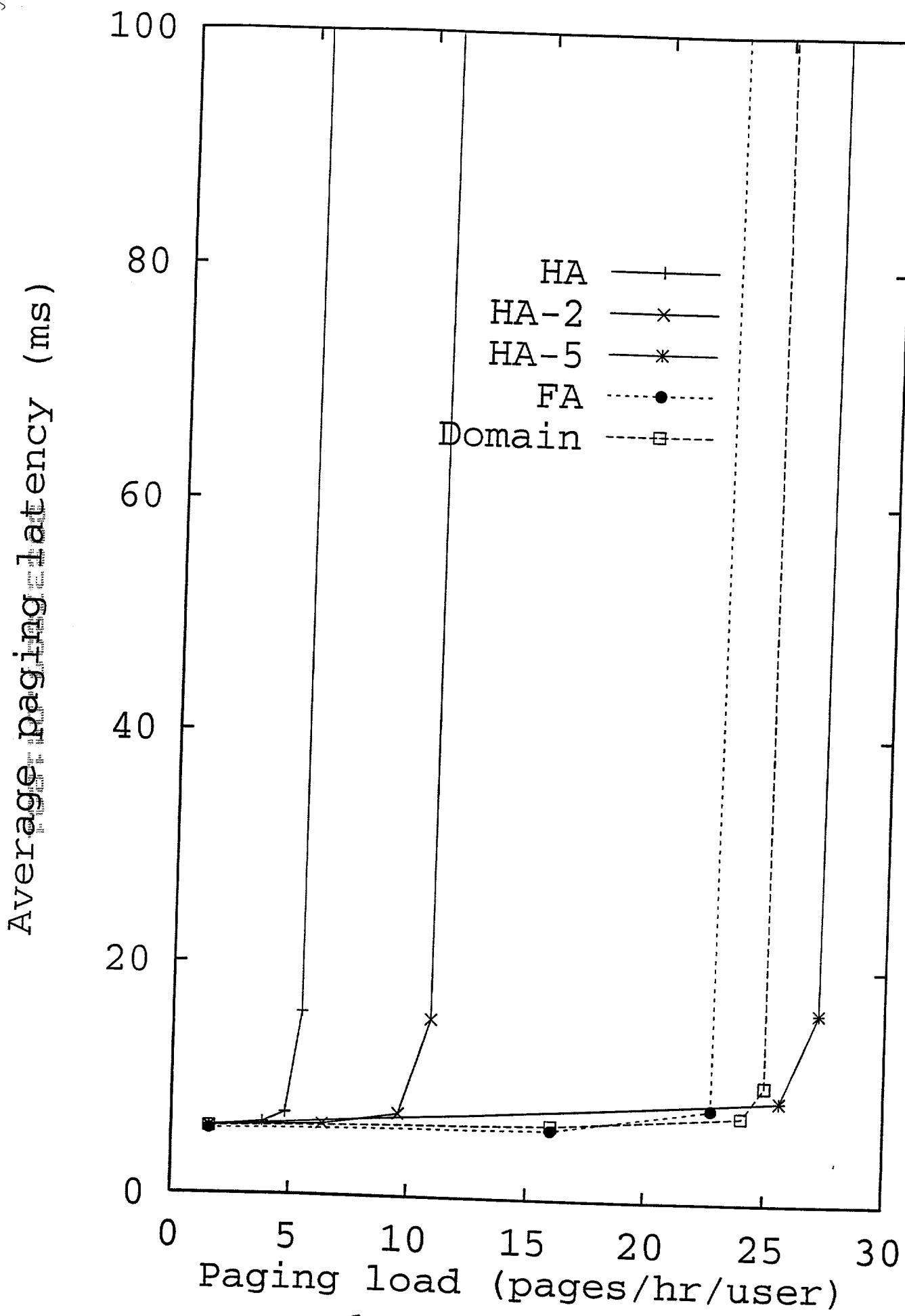


FIG. 7(a)

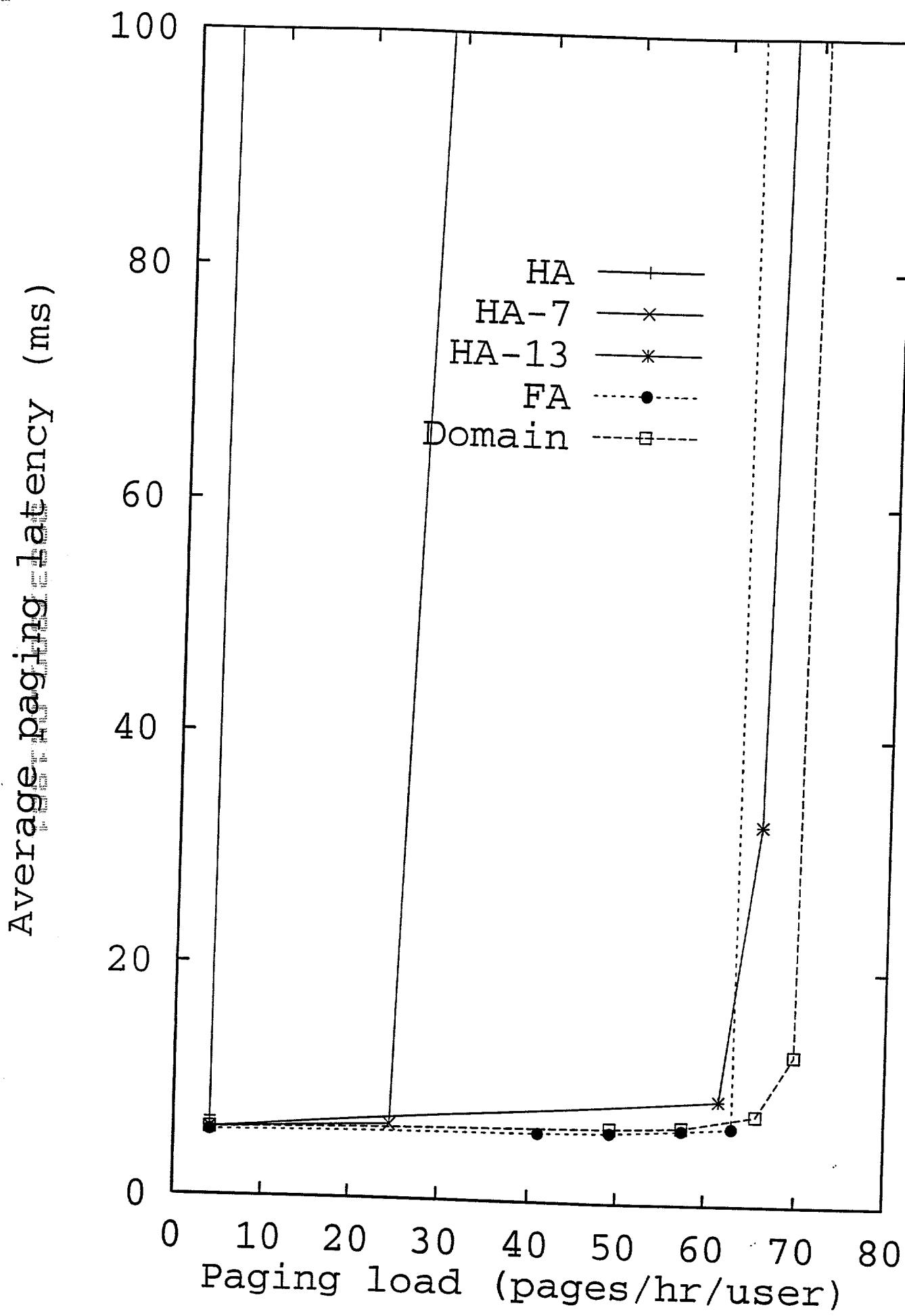


FIG. 7 (b)

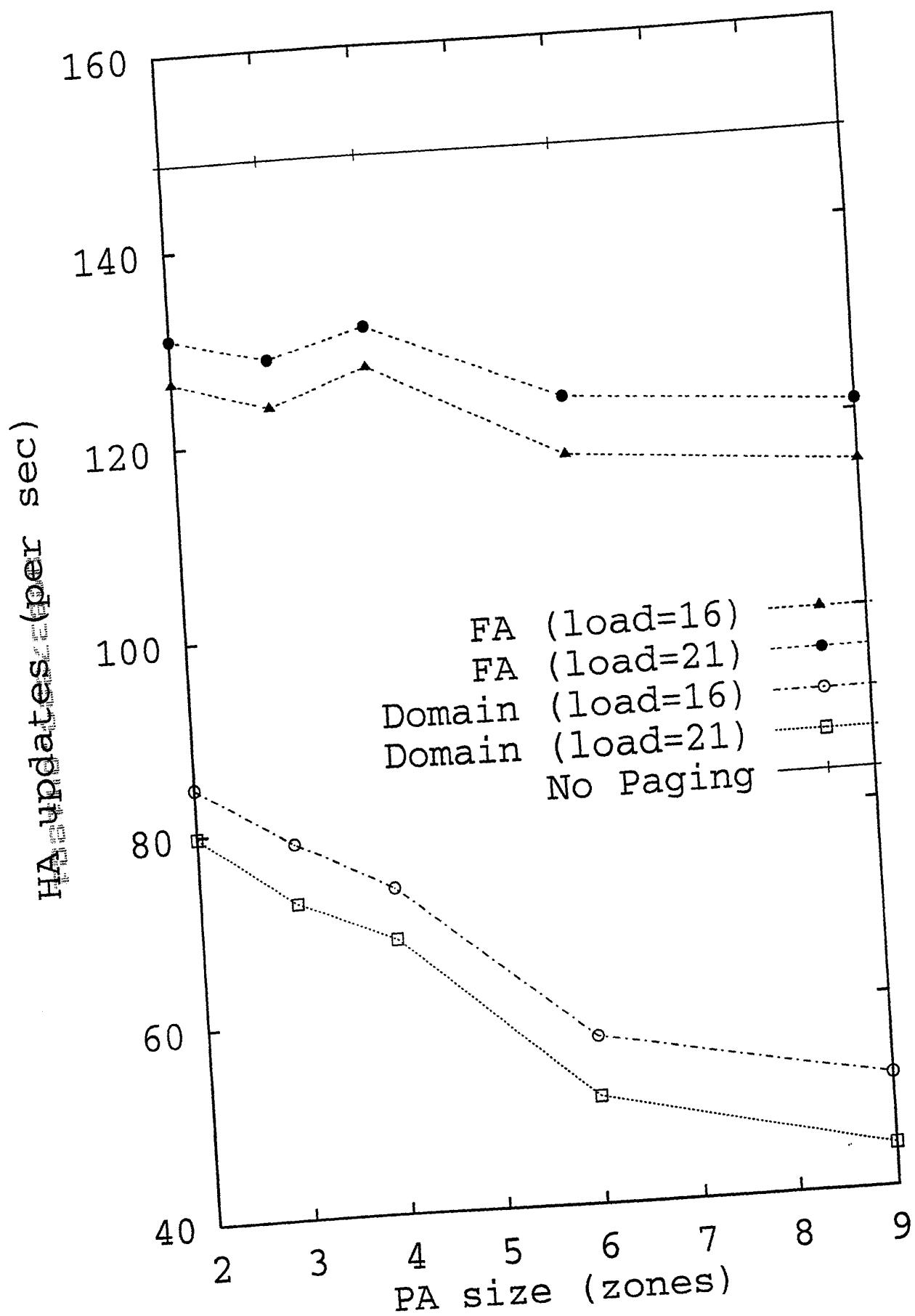


FIG. 8 (a)

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Average paging latency (ms)

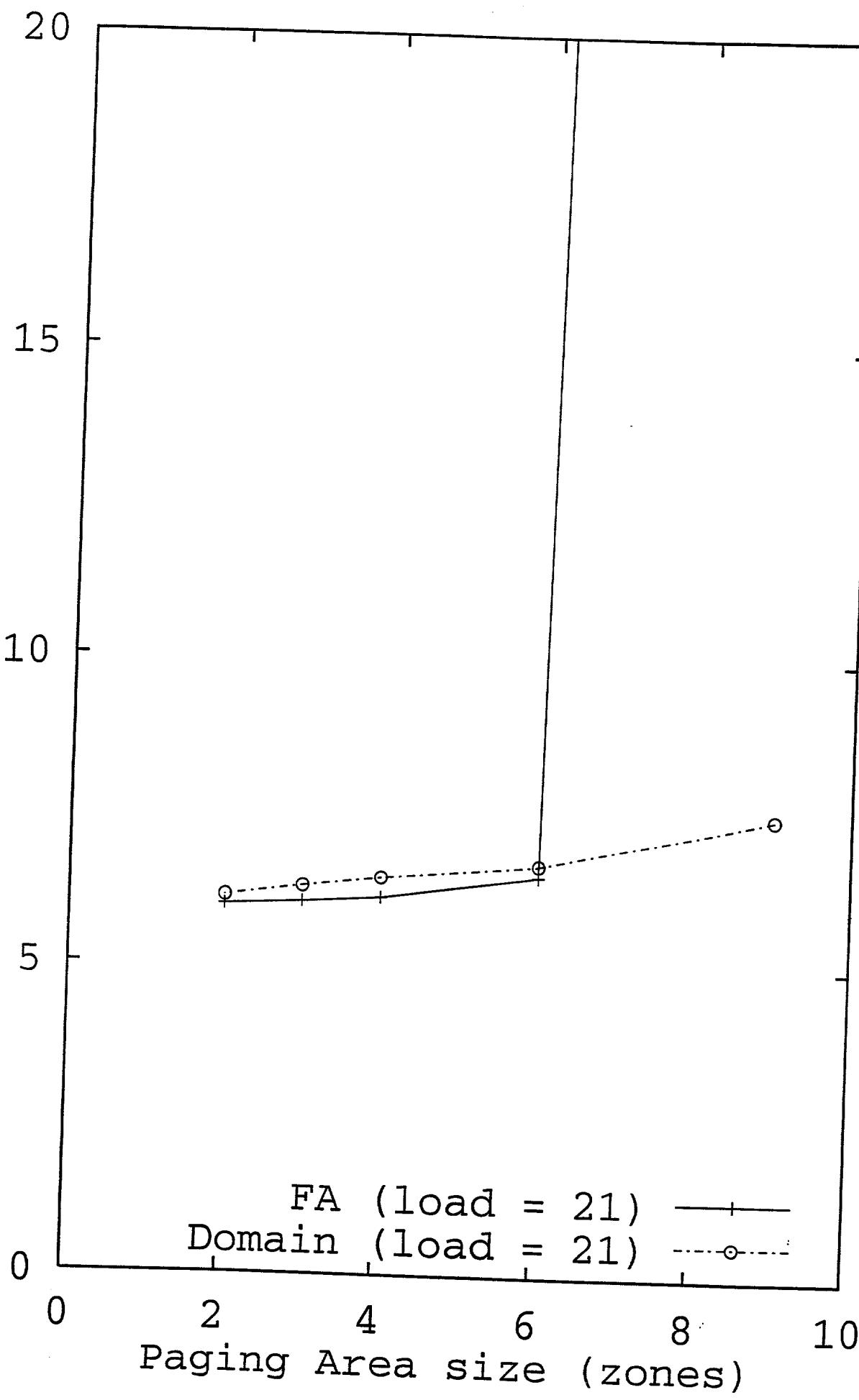


FIG. 3(b)

Average paging latency (ms)

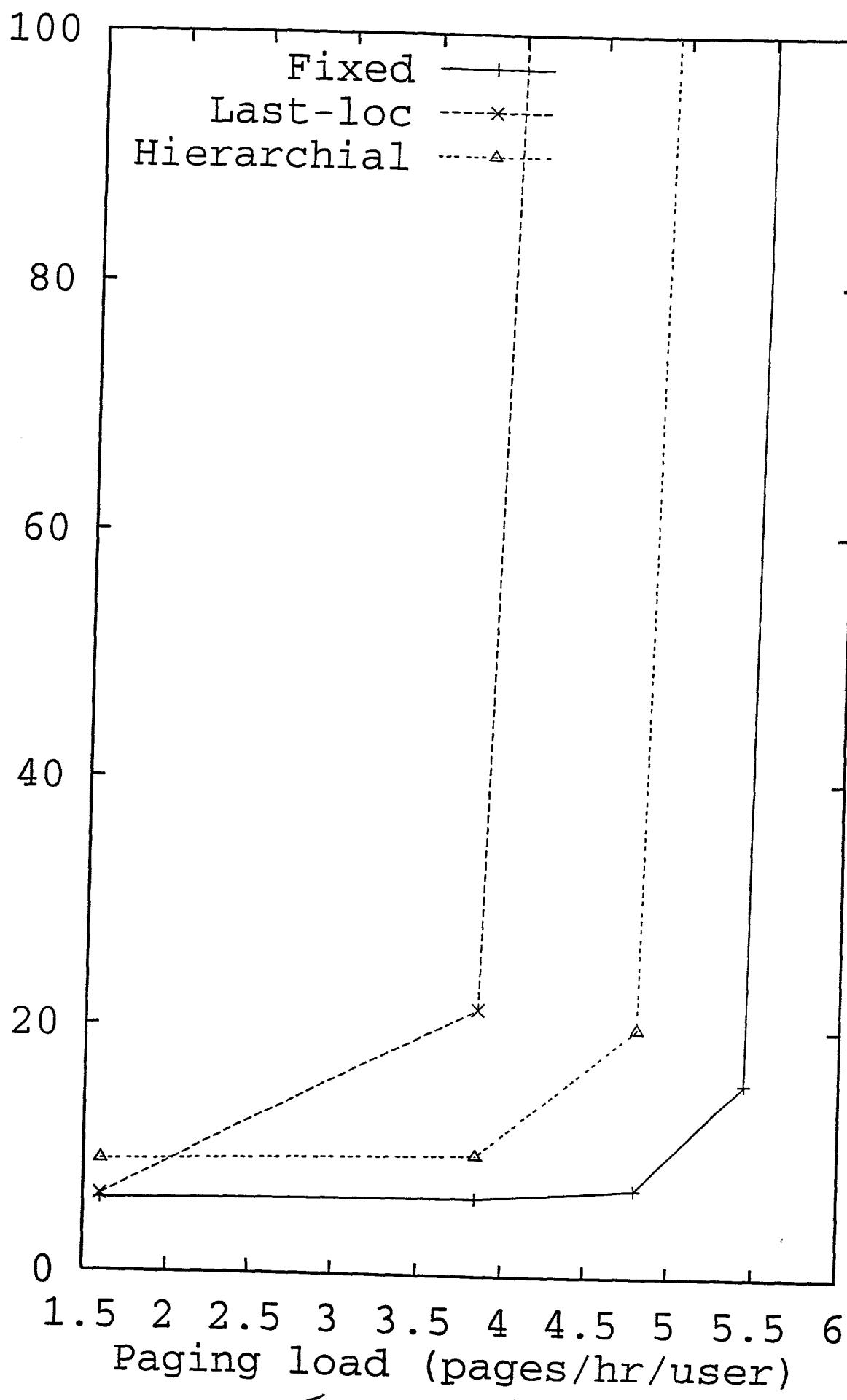


FIG. 9(a)

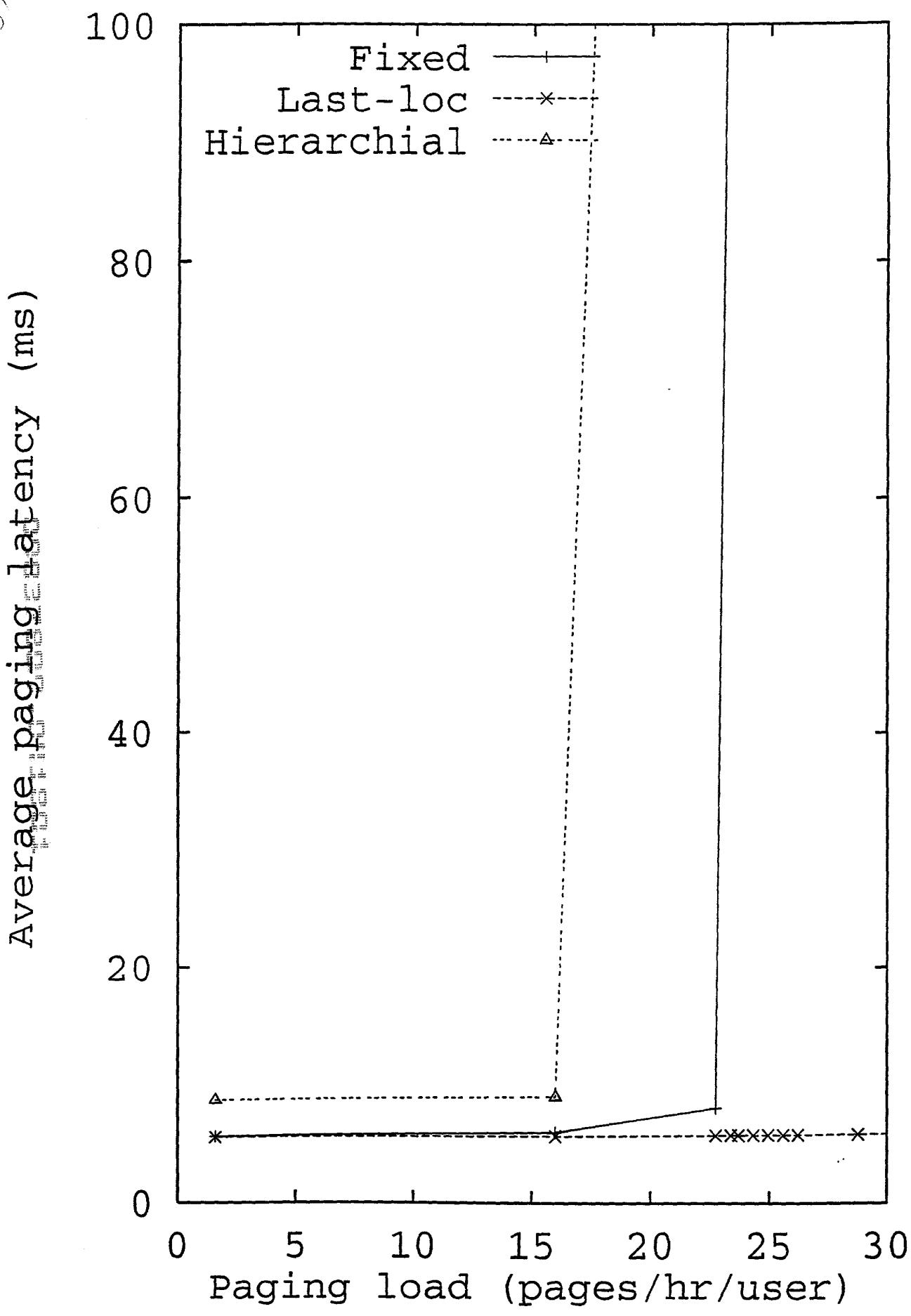


Fig. 9(b)

176
Average paging latency (ms)

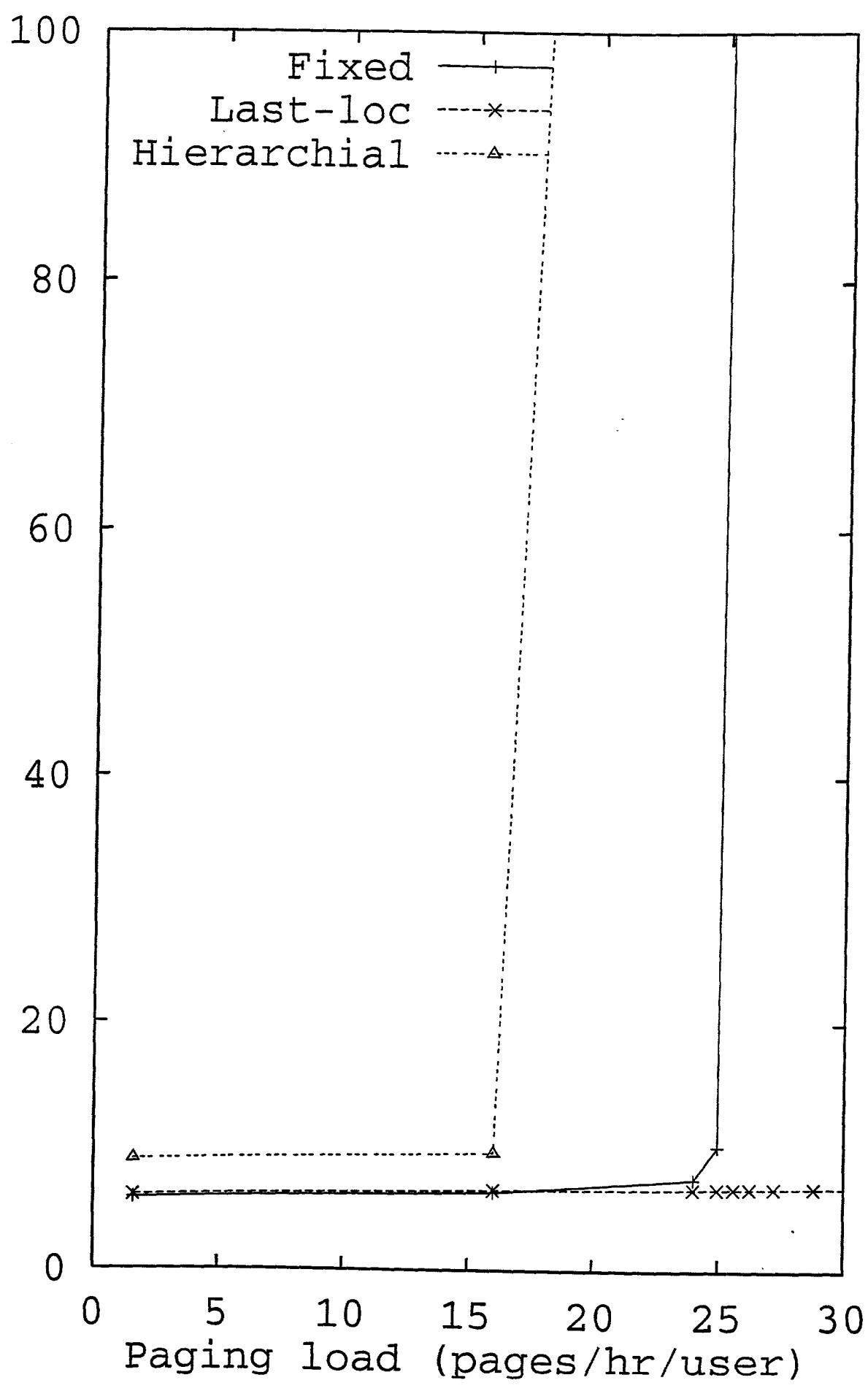
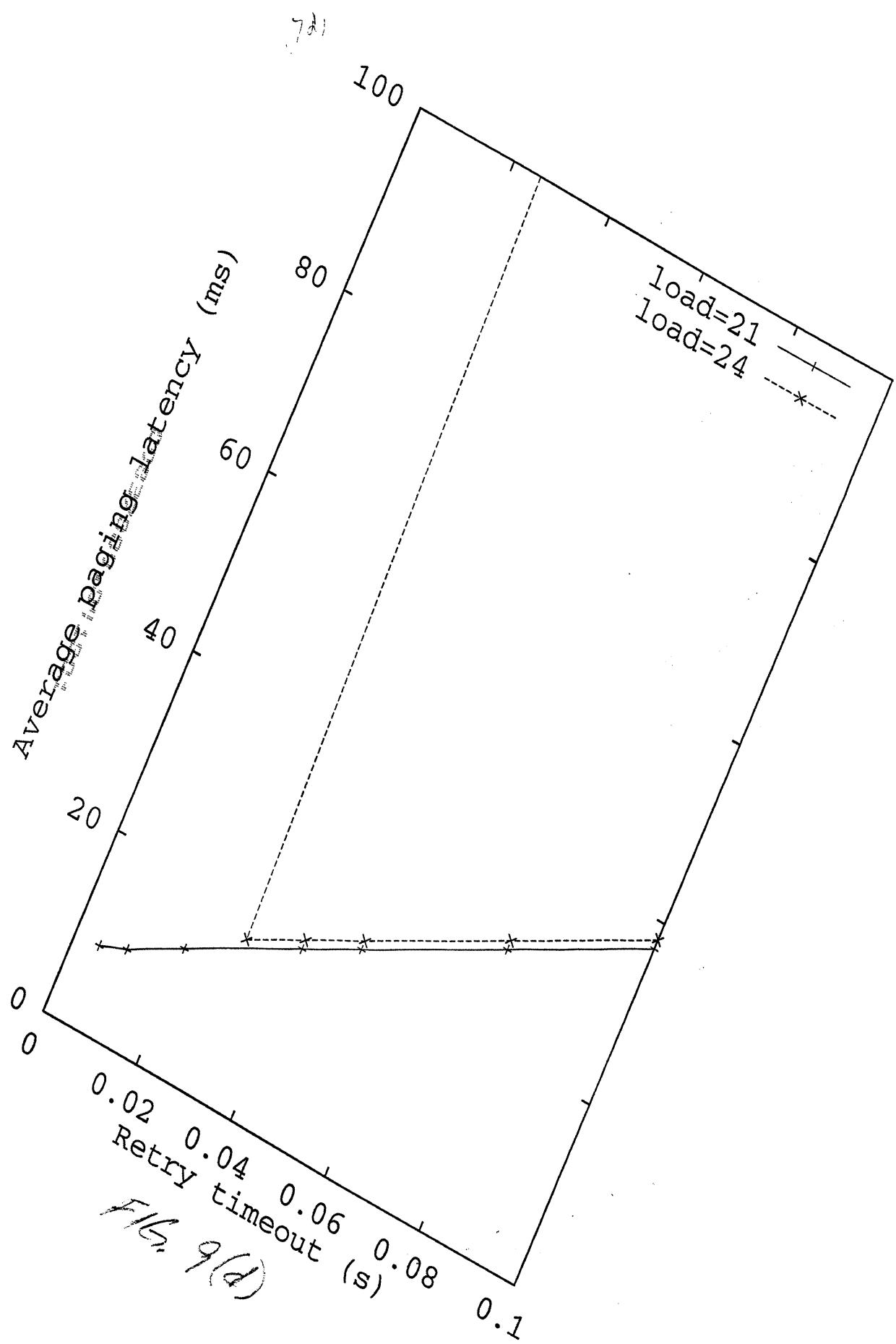


FIG 9(c)



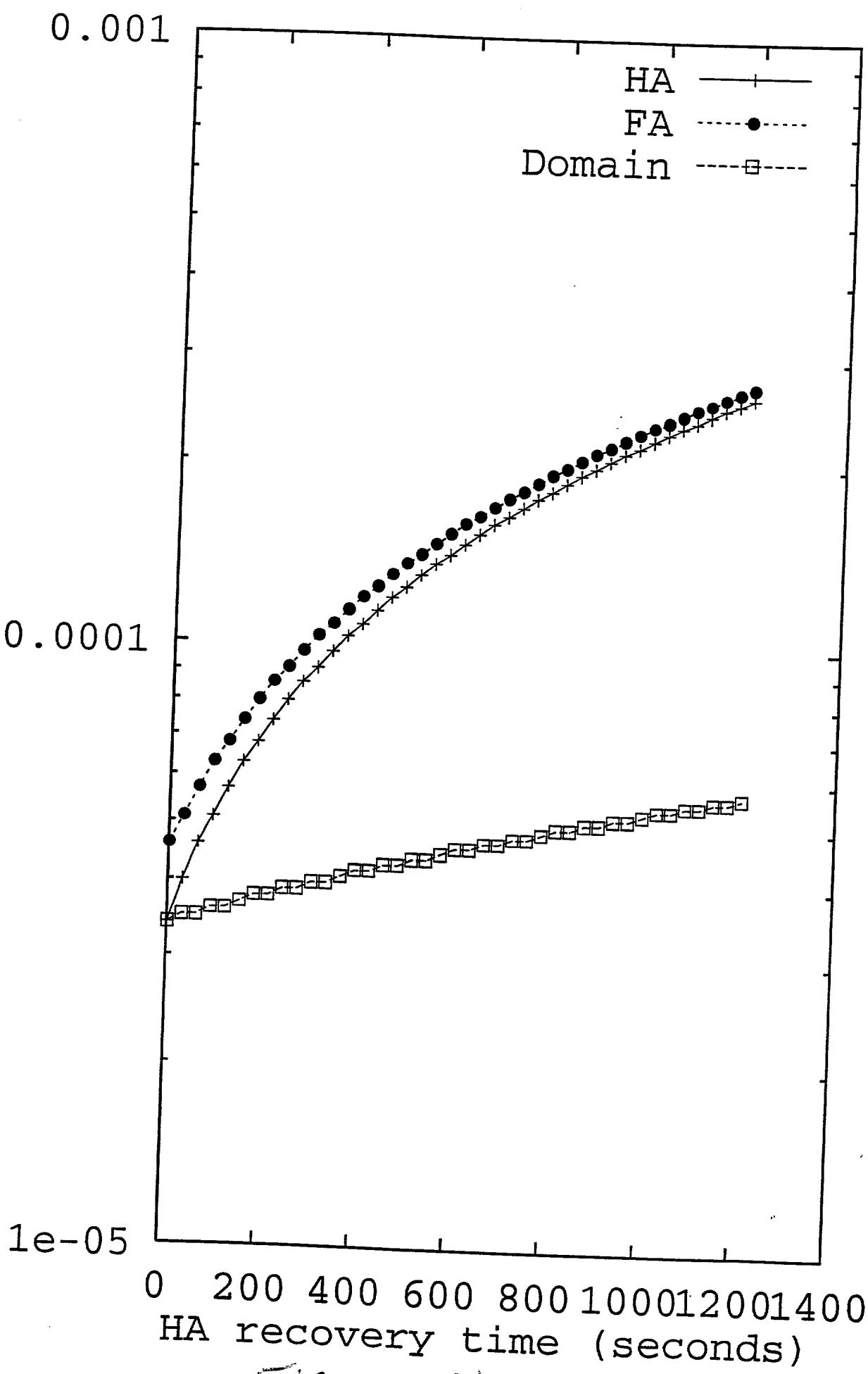


FIG. 10(8)

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Unavailability

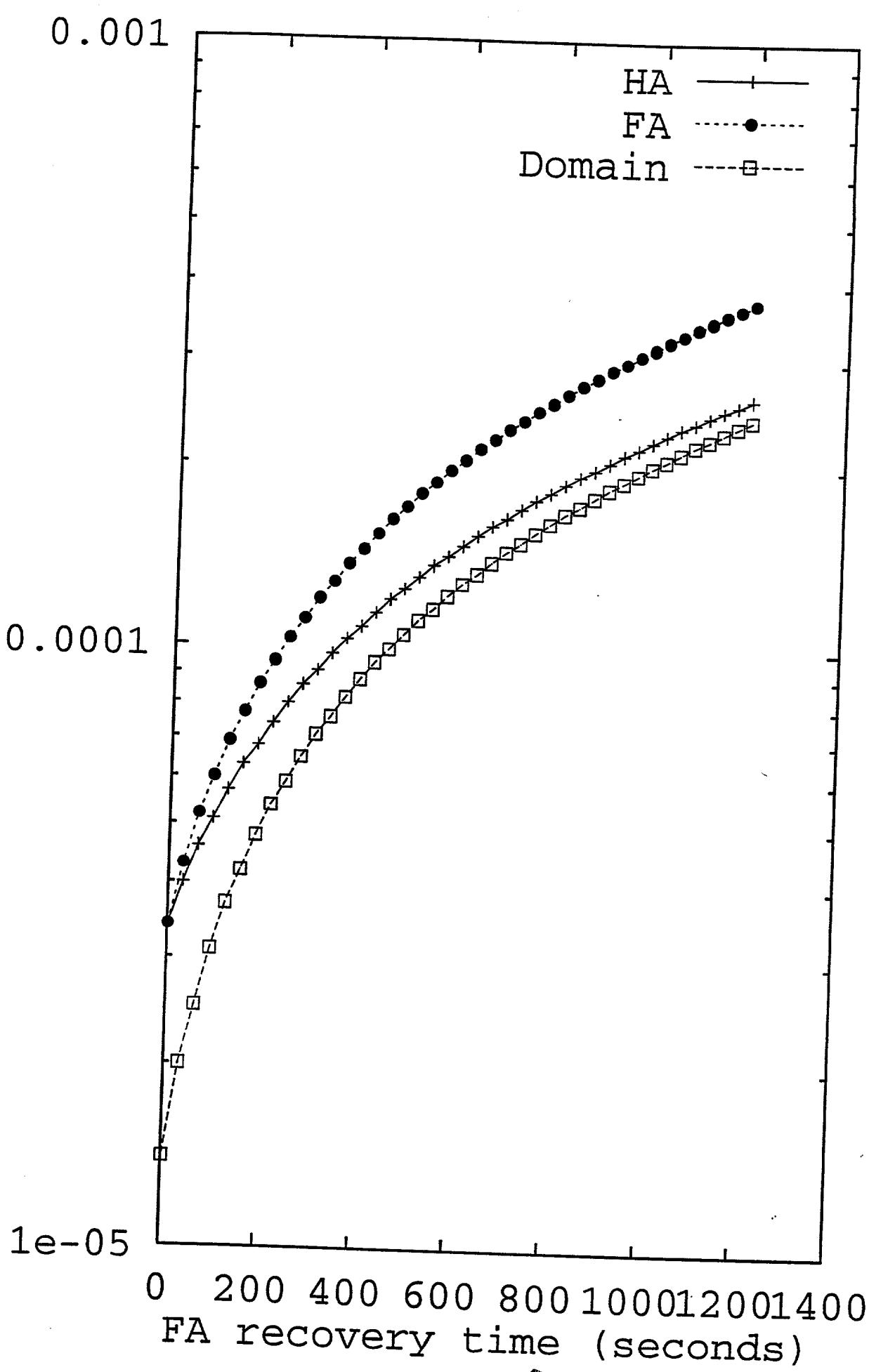


FIG. 10 (b)

FIG. 11

ROUTER PROCESSING FOR A GIVEN MOBILE HOST

| Routing entry | Paging entry | Host state | Router action |
|---------------|--------------|------------|--------------------------|
| Y | Y/N | Active | Regular IP forwarding |
| N | Y | Standby | Paging processing |
| N | N | Null | Drop if no default route |

1. Receive protocol message from neighbor with (MH IP ADDRESS, MGA) on Port A
2. If I am the Domain Root Router
3. Set entry to (MH IP ADDRESS → MGA, Port A)
4. else
5. Set entry to (MH IP ADDRESS → MGA, Port A)
6. Forward to upstream neighbor along default route
7. endif

FIG. 12

Paging update processing in base station/router

FIG 13

1. IP packet for MH arrives at node with entry (MH IP address → MGA, Port A)
2. if (packet arrives from default route port or I am Domain root Router)
3. if ((no refresh on Port A) /* Failure */
or (page queue $< \beta$)//*lightly loaded?*/
or (I am a base station)) /* Initiate Paging */
6. buffer packet and send page to MGA
7. increase retry counter and set retry timer
8. else /* Push paging initiation downstream */
9. route the packet through Port A
10. endif
11. else
12. forward packet along default route to DRR
13. endif

Paging initiation in base station/router

Fig. 14

1. Receive protocol message with from neighbor
(MH IP ADDRESS, MGA) on Port A
2. If I am the paging initiator
3. Set entry to (MH IP ADDRESS → Port A)
4. Forward buffered packets
5. else
6. Set entry to (MH IP ADDRESS → Port A)
7. Forward response hop-by-hop towards initiator
8. endif

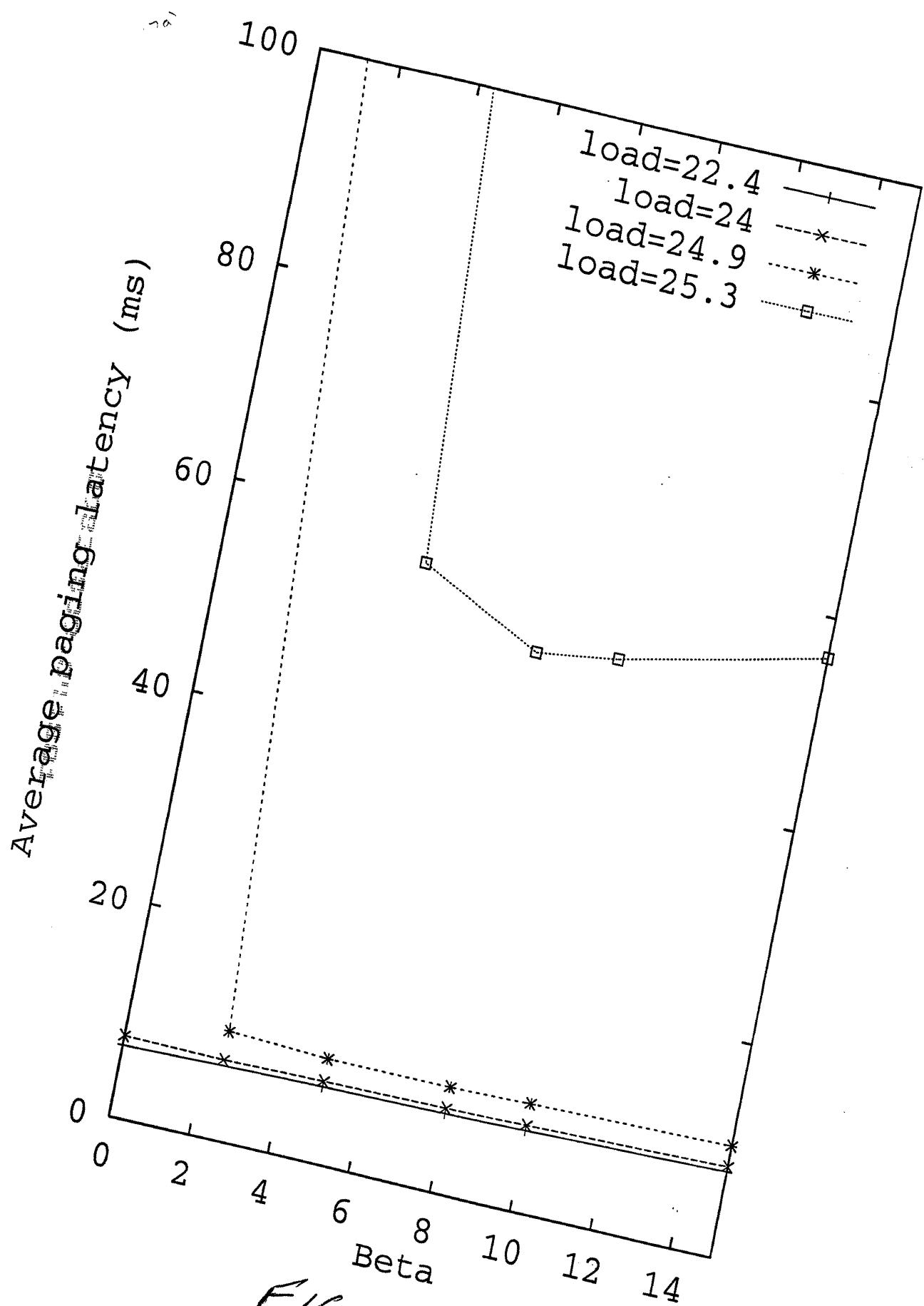


FIG. 15(a)

